

## **REMARKS**

Applicants again want to thank the Examiner for conducting an interview with applicants' representative. During the interview, the claims were discussed including possible amendments to define physical work capacity and improvements in physical work capacity.

In addition, the Clark et al. reference was discussed. It was stated that Clark et al is not credible because of the number of diseases and conditions that according to Clark et al. can be treated or prevented by ingestion of colostrum. The Clark reference will be discussed in more detail below.

According to the Office Action, claims 28-29, 46-48 and 74-75 are rejected as being obvious under 35 USC 103(a) as being unpatentable over WO97/16977, AU-A-631136/94, Clark et al. and Ballard et al. This is respectfully traversed.

WO 97/16977, AU-A-631136/94 and Ballard et al. were discussed in previous responses and those arguments are incorporated herein.

It is applicants' position the claims are patentable over these references even in combination with Clark et al. Clark et al. is not a reference that one of skill in the art would consider to be credible and reliable. This is because of the number of diseases and conditions that according to Clark et al. are allegedly treated, cured and/or alleviated by ingestion of colostrum.

Clark et al. state that colostrum can be used to treat, cure or alleviate the diseases and conditions listed below. Certain statements made about these effects are based on anonymous testimonials and most are not based on scientifically based studies.

**Antiviral**

**Respiratory illness**

**Influenza viruses**

**Asian flu viruses**

**Prevents attachment of Helicobacter Pylori**

**Inflammation inhibitory agent**

**Reducing inflammation in arthritic joints and injury areas**

**Speed maturation of cultured B lymphocytes**

**Activate macrophages**

**Neutralize bacteria, viruses and yeast**

**Effective against disease-causing organisms**

**Immunoprotection against a host of gut-associated disease causing antigens (viral and bacterial)**

**Regulating allergic response**

**Immunization for prevention and treatment of acute intestinal diseases**

**Stimulates lymphoid tissue**

**Development of immune system**

**Correct immunodeficiency**

**Reduces and prevents viral and bacterial infections in immune deficient subjects-bone marrow recipients, premature babies, AIDS**

**Treat thrombocytopenia, anemia, neutropenia, myasthenia lupus, rheumatoid arthritis, bullous pemphigoid, Kawasaki's syndrome, chronic fatigue syndrome and Crohn's disease**

**Immune modulator**

**Inhibits cell growth of human osteosarcoma (cancer)**

**Mediator of fibrosis and angiogenesis (healing of heart muscle and blood vessels)**

**Accelerates wound healing and bone formation**

**Retinoic acids found in colostrum conferred protection and reduced colonization of herpes virus**

**Stimulates cartilage repair**

**Promote normal cell growth and DNA synthesis**

**Stimulates muscle growth and nerve regeneration**

**Tissue repair**

**Treat depression, gingivitis, bowel health**

**Strengthen immune system**

**Treatment of varicose veins**

**Healthy and shiny hair**

**Treatment of arthritis**

**No drug interactions**

**Weight loss**

**Feelings of wonderful well-being**

**Reductions and elimination of pain and symptoms of disease**

**Accelerated healing with surgeries, wounds and broken bones**

**Elimination of colds and flu**

**Accelerated physical strength and endurance**

**Treatment for multiple sclerosis**

**Treatment for Epstein Barr Virus**

**Treatment of burns**

**Treatment of polymyalgia rheumatica**

**Prevention of intestinal permeability and allergies, diabetes and leaky gut syndrome**

**Neutralization of bacteria and viruses and toxins**

**Neutralization of Clostridium**

**Prevent growth of E.coli and neutralized its highly toxic wastes, preventing infection and diarrhea**

**Prevent cholera**

**Control of E.coli, Salmonella, Shigella, V. Cholera, Bacteriodes Fragilis,  
Streptococcus, Pneumoniae, Bordetella Pertussis, Clostridium diphtheria,  
Clostridium tetani and**

**Treatment of candida albicans infection**

**Treatment of autoimmune diseases**

**Transform cortisone-resistant thymocytes into cortisone-sensitive thymocytes**

**Increases permeability of skin vessels**

**Causes differentiation of murine thymocytes into functionally active T cells**

**Change surface markers and function of cells**

**Effective to stop colds, herpes, cold sores, flu viruses, viral bronchitis, viral  
pneumonia, RSV and chronic fatigue syndrome**

**Lower risk of heart attack**

**Lower LDL concentration**

**Increase HDL concentration**

**Limit and inhibit the growth of cancer cells, prohibiting initial infections and  
destroy (infected) tumorous cells**

**Growth supplement**

**Replacement of IGF-1**

**Stimulate rapid healing of tissues damaged by ulcers, trauma, surgery or disease**

**Healing powers benefit muscle, cartilage, bone, epithelial (skin) cells, nerve cells and  
immune factors**

**Topical healing**

**Sensitive teach**

**Increase IgF-1 to pre-puberty levels**

**Increased muscle weight and strength**

**Tone muscles, melt body fact, return elasticity to skin and increase bone density**

**Decrease in blood pressure**

**Treatment of blurry eyes**

**Treatment of blepharitis (inflammation of the eyelids)**

**Improved vision and memory**

**Healthy fingernails**

**Treatment of warts**

**Less noticeable wrinkles**

**Treatment of age spots**

**Treatment of sinus pain**

**Treatment of diabetes**

**Prevention of polio**

**Colostrum provided specific antibody reactivity to bacteria, viruses and yeasts responsible for appendicitis, aseptic or viral meningitis, bronchitis, bronchi or viral pneumonia, candida albicans, chicken pox, cholera, diarrhea, dysentery, diphtheria, gastroenteritis, Japanese B Encephalitis, mucus membrane infections, parathyroidism, pneumonia, polio, septicemia (blood poisoning), tetanus, typhoid, viral myelitis and whooping cough**

**Reduction in glaucoma, scarring after eye injury or surgery, and reduction in eye lesions.**

Given this list, one skilled in the art would not accept Clark et al. as a valid scientific article. Even a lay person who is not skilled in the art would be extremely skeptical about relying on Clark et al. given it's "A to Z" list of diseases and conditions that can supposedly be cured, treated or alleviated by colostrum.

Although, Clark et al. on page 55 discloses " Accelerated physical strength and endurance" this statement is taken from a testimonial and there is no information as to who made the statement

and the basis for making the statement. Given the context in this article, one skilled in the art would not consider it to be a credible statement and would not rely on it.

It is applicants' position that Clark et al. is not a reference that would be accepted by one of skill in the relevant art. As was stated by the US Supreme Court in Daubert v. Merrell Dow, 509 US 579 (1993):

Faced with a proffer of expert scientific testimony under Rule 702, the trial judge, pursuant to Rule 104(a), must make a preliminary assessment of whether the testimony's underlying reasoning or methodology is scientifically valid and properly can be applied to the facts at issue. Many considerations will bear on the inquiry, including whether the theory or technique in question can be (and has been) tested, whether it has been subjected to peer review and publication, its known or potential error rate and the existence and maintenance of standards controlling its operation, and whether it has attracted widespread acceptance within a relevant scientific community. The inquiry is a flexible one, and its focus must be solely on principles and methodology, not on the conclusions that they generate. (Emphasis added)

Ordinarily, a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested. "Scientific methodology today is based on generating hypotheses and testing them to see if they can be falsified; indeed, this methodology is what distinguishes science from other fields of human inquiry." Green, 645. See also C. Hempel, *Philosophy of Natural Science* 49 (1966) ("[T]he statements constituting a scientific explanation must be capable of empirical test"); K. Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge* 37 (5th ed. [509 U.S. 579, 13] 1989) ("[T]he criterion of the scientific status of a theory is its falsifiability, or refutability, or testability").

Another pertinent consideration is whether the theory or technique has been subjected to peer review and publication. Publication (which is but one element of peer review) is not a sine qua non of admissibility; it does not necessarily correlate with reliability, see S. Jasanoff, *The Fifth Branch: Science Advisors as Policymakers* 61-76 (1990)...

[S]ubmission to the scrutiny of the scientific community is a component of "good science," in part because it increases the likelihood that substantive flaws in methodology will be detected. See J. Ziman, *Reliable Knowledge: An Exploration of the Grounds for Belief in Science* 130-133 (1978); Relman & Angell, *How Good Is Peer Review?*, 321 *New Eng.J.Med.* 827 (1989). The fact of publication (or lack thereof) in a peer reviewed journal thus will be a relevant, though not dispositive, consideration in assessing the scientific validity of a particular technique or methodology on which an opinion is premised.

To the best of applicants' knowledge, the Clark et al. article is not peer-reviewed and is a compilation of testimonials and citations to other articles but is not what one in the art would consider a review article.

Since Clark et al. is would not be accepted by one of skill in the art as credible or as disclosing "good science" it cannot be considered as a valid reference.

The Examiner is reminded that applicants have filed a declaration of Jonathan Buckley which support that low concentrations of IGF in the colostrum would have little effect and that it is surprising that the processed colostrum worked in achieving the claimed results.

The Examiner is also reminded that this application contains scientific data to support the claimed invention including increased physical work capacity, endurance, improved exercise, etc.

As none of the other references cited by the Examiner disclose any information or suggest a method for improving physical work capacity, it is respectfully requested that the rejection be withdrawn.

The Examiner has also questioned the terms resisted and non-resisted exercises. These are art recognized terms. According to Dorland's Medical Dictionary for Health Consumers. © 2007 by Saunders, an imprint of Elsevier, Inc. resistance exercise, resistive exercise is that performed by the patient against resistance, as from a weight. (see page 4 of 6 of the attachment print it from the medical-dictionary.thefreedictionary.com).

It is submitted that the application is in condition for allowance and favorable consideration is respectfully requested.

Respectfully submitted,

A handwritten signature in dark ink, consisting of a large, stylized 'C' followed by a smaller 'I' and 'C', all connected together.

JANET I. CORD  
LADAS & PARRY LLP  
26 WEST 61ST STREET  
NEW YORK, NEW YORK 10023  
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resistance exercise

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## exercise

(redirected from *resistance exercise*)

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## Exercise

### Definition

Exercise is physical activity that is planned, structured, and repetitive for the purpose of conditioning any part of the body. Exercise is utilized to improve health, maintain fitness and is important as a means of physical [rehabilitation](#).

### Purpose

Exercise is useful in preventing or treating coronary heart disease, [osteoporosis](#), weakness, diabetes, [obesity](#), and depression. Range of motion is one aspect of exercise important for increasing or maintaining joint function. Strengthening exercises provide appropriate resistance to the muscles to increase endurance and strength. [Cardiac rehabilitation](#) exercises are developed and individualized to improve the cardiovascular system for prevention and rehabilitation of cardiac disorders and diseases. A well-balanced exercise program can improve general health, build endurance, and delay many of the effects of [aging](#). The benefits of exercise not only improve physical health, but also enhance emotional well-being.

A study released in 2003 reported that exercise combined with behavioral therapy may even help manage the symptoms experienced by Gulf War veterans. Specifically, exercise helped improve symptoms related to [fatigue](#), distress, cognitive problems and mental health functioning. In the same year, the American Heart Association released a statement saying that exercise was beneficial even for patients awaiting heart transplants. Another study showed that women who participated in strenuous physical activity over a number of years could reduce their risk for [breast cancer](#). Finally, research showed that men and women age 40 to 50 who exercised moderately for 60 to 90 minutes a day were less likely to catch a cold than those who sat around.

### Precautions

Before beginning any exercise program, an evaluation by a physician is recommended to rule out any potential health risks. Once health and fitness are determined, and any or all physical restrictions identified, an individual's exercise program should be under the supervision of a health care professional. This is particularly true when exercise is used as a form of rehabilitation. If symptoms of [dizziness](#), nausea, excessive [shortness of breath](#), or chest pain are present during any exercise program, an individual should stop the activity and inform a physician about these symptoms before resuming activity. Exercise equipment must be checked to determine if it can bear the weight of people of all sizes and shapes.

### Description

#### Range of motion exercise

Range of motion exercise refers to activity aimed at improving movement of a specific joint. This motion is influenced by several structures: configuration of bone surfaces within the joint, joint capsule, ligaments, and muscles and tendons acting on the joint. There are three types of range of motion exercises: passive, active, and active assists. Passive range of motion is movement applied to a joint solely by another person or persons or a passive motion machine. When passive range of motion is applied, the joint of an individual receiving exercise is completely relaxed while the outside force moves the body part, such as a leg or arm, throughout the available range. Injury, surgery, or [immobilization](#) of a joint may affect the normal range of motion. Active range of motion is movement of a joint provided entirely by the individual performing the exercise. In this case, there is no outside force aiding in the movement. Active assist range of motion is described as a joint receiving partial assistance from an outside force. This range of motion may result from the majority of motion applied by an exerciser or by the person or persons assisting the individual. It also may be a half-and-half effort on the joint from each source.

#### Strengthening exercise

[resistance exercise](#)

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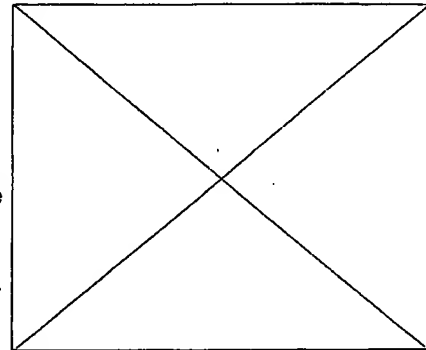
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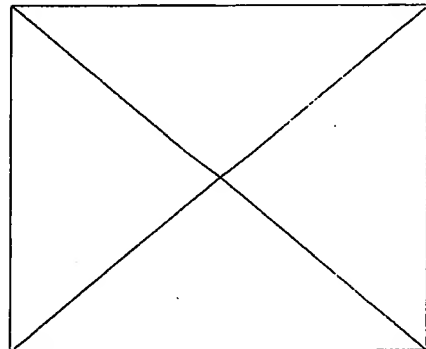
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Strengthening exercise increases muscle strength and mass, bone density, and the body's metabolism. It can help attain and maintain proper weight and improve body image and self-esteem. A certain level of muscle strength is needed to do daily activities, such as walking, running and climbing stairs. Strengthening exercises increase this muscle strength by putting more strain on a muscle than it is normally accustomed to receiving. This increased load stimulates the growth of proteins inside each muscle cell that allow the muscle as a whole to contract. There is evidence indicating that strength training may be better than aerobic exercise alone for improving self-esteem and body image. Weight training allows one immediate feedback, through observation of progress in muscle growth and improved muscle tone. Strengthening exercise can take the form of isometric, isotonic and isokinetic strengthening.

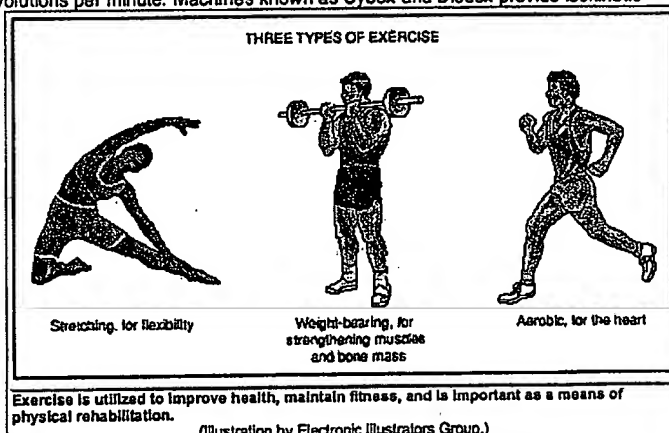
**ISOMETRIC EXERCISE.** During isometric exercises, muscles contract. However, there is no motion in the affected joints. The muscle fibers maintain a constant length throughout the entire contraction. The exercises are usually performed against an immovable surface or object such as pressing one's hand against a wall. The muscles of the arm are contracting but the wall is not reacting or moving as a result of the physical effort. Isometric training is effective for developing total strength of a particular muscle or group of muscles. It often is used for rehabilitation since the exact area of muscle weakness can be isolated and strengthening can be administered at the proper joint angle. This kind of training can provide a relatively quick and convenient method for overloading and strengthening muscles without any special equipment and with little chance of injury.

**ISOTONIC EXERCISE.** Isotonic exercise differs from isometric exercise in that there is movement of a joint during the muscle contraction. A classic example of an isotonic exercise is weight training with dumbbells and barbells. As the weight is lifted throughout the range of motion, the muscle shortens and lengthens. Calisthenics are also an example of isotonic exercise. These would include chin-ups, push-ups, and sit-ups, all of which use body weight as the resistance force.

**ISOKINETIC EXERCISE.** Isokinetic exercise utilizes machines that control the speed of contraction within the range of motion. Isokinetic exercise attempts to combine the best features of both isometrics and weight training. It provides muscular overload at a constant preset speed while a muscle mobilizes its force through the full range of motion. For example, an isokinetic stationary bicycle set at 90 revolutions per minute means that despite how hard and fast the exerciser works, the isokinetic properties of the bicycle will allow the exerciser to pedal only as fast as 90 revolutions per minute. Machines known as Cybex and Biodex provide isokinetic results;

they generally are used by physical therapists.

Cardiac rehabilitation Exercise can be very helpful in prevention and



rehabilitation of cardiac disorders and disease. With an individually designed exercise program set at a level considered safe for the individual, people with symptoms of heart failure can substantially improve their fitness levels. The greatest benefit occurs as muscles improve the efficiency of their oxygen use, which reduces the need for the heart to pump as much blood. While such exercise doesn't appear to improve the condition of the heart itself, the increased fitness level reduces the total workload of the heart. The related increase in endurance also should translate into a generally more active lifestyle. Endurance or aerobic routines, such as running, brisk walking, cycling, or swimming, increase the strength and efficiency of the muscles of the heart.

### Preparation

A physical examination by a physician is important to determine if strenuous exercise is appropriate or detrimental for an individual. Prior to the exercise program, proper stretching is important to prevent the possibility of soft tissue injury resulting from tight muscles, tendons, ligaments, and other joint-related structures.

### Aftercare

Proper cool down after exercise is important in reducing the occurrence of painful muscle spasms. It has been documented that proper cool down also may decrease frequency and intensity of muscle stiffness the day following any exercise program.

### Risks

Improper warm up can lead to muscle strains. Overexertion without enough time between exercise sessions to recuperate also can lead to muscle strains, resulting in inactivity due to pain. Stress fractures also are a possibility if activities are strenuous over long periods of time

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a need for further studies to identify potential risks.

### Normal results

Significant health benefits are obtained by including a moderate amount of physical exercise in the form of an exercise prescription. This is much like a drug prescription in that it also helps enhance the health of those who take it in the proper dosage. Physical activity plays a positive role in preventing disease and improving overall health status. People of all ages, both male and female, benefit from regular physical activity. Regular exercise also provides significant psychological benefits and improves quality of life. Studies released in 2003 showed the actual activity in the brain promoted by regular aerobic exercise. It appears that exercise also improves problem solving and other brain-related abilities.

### Abnormal results

There is a possibility of exercise burnout if an exercise program is not varied and adequate rest periods are not taken between exercise sessions. Muscle, joint, and cardiac disorders have been noted among people who exercise. However, they often have had preexisting or underlying illnesses.

### Key terms

**Aerobic** — Exercise training that is geared to provide a sufficient cardiovascular overload to stimulate increases in cardiac output.

**Calisthenics** — Exercise involving free movement without the aid of equipment.

**Endurance** — The time limit of a person's ability to maintain either a specific force or power involving muscular contractions.

**Osteoporosis** — A disorder characterized by loss of calcium in the bone, leading to thinning of the bones. It occurs frequently in postmenopausal women.

### Resources

#### Books

Bookhout, Mark R., and Grenman, Philip. *Principles of Exercise Prescription*. Woburn, MA: Butterworth-Heinemann, 2001.

Harr, Eric. *The Portable Personal Trainer*. New York: Broadway Books, 2001.

McArdle, William D., Frank I. Katch, and Victor L. Katch. *Exercise Physiology: Energy, Nutrition, and Human Performance*. 5th ed. Philadelphia: Lippincott, 2001.

Redding, Morgan. *Physical Fitness: Concepts and Applications*. Dubuque, IA: Kendall/Hunt Publishing, 2001.

Roberts, Matt. *90-Day Fitness Plan*. Littleton, CO: DK Publishers, 2001.

#### Periodicals

Brun, J. F., M. Dumortier, C. Fedou, and J. Mercier. "Exercise Hypoglycemia in Nondiabetic Subjects." *Diabetes and Metabolism* 27 (2001): 92-106.

"Cognitive Behavioral Therapy Plus Exercise May Alleviate Symptoms." *Mental Health Weekly Digest* (March 31, 2003): 3.

Evans, E. M., R. E. Van Pelt, E. F. Binder, D. B. Williams, A. A. Ehsani, and W. M. Kohrt.

"Effects of HRT and Exercise Training on Insulin Action, Glucose Tolerance, and Body Composition in Older women." *Journal of Applied Physiology* 90 (2001): 2033-2040.

"Exercise May Help Patients." *Heart Disease Weekly* (March 30, 2003): 44.

Killian, K. J. "Is Exercise Tolerance Limited by the Heart or the Lungs?" *Clinical Investigations in Medicine* 24 (2001): 110-117.

Resnick, B. "Testing a model of exercise behavior in older adults." *Research in Nursing and Health* 24, no.2 (2001): 83-92.

"Stay Active to Stay Cold-Free: A Recent Study Found that You can Ward Off the Sniffle with a Little Exercise." *Natural Health* (March 2003): 30.

"Strenuous Physical Activity Throughout Life can Decrease Risk." *Cancer Weekly* (March 18, 2003): 32.

"Study is First to Confirm Link Between Exercise and Changes in Brain." *Obesity, Fitness and Wellness Week* (February 22, 2003): 13.

#### Organizations

American College of Sports Medicine. 401 W. Michigan Street, Indianapolis, IN 46202-3233. (317) 637-9200. Fax: (317) 634-7817. <http://www.acsm.org/>. [mkeckhaver@acsm.org](mailto:mkeckhaver@acsm.org).

American Medical Association. 515 N. State Street, Chicago, IL 60610. (312) 464-5000. <http://www.ama-assn.org/>.

American Physical Therapy Association. 1111 North Fairfax Street Alexandria, VA 22314. (703) 684-2782. <http://www.apta.org>.

National Athletic Trainers' Association. 2952 Stemmons Freeway, Dallas, TX 75247-6916. (800) 879-6282 or (214) 637-6282. Fax: (214) 637-2206. <http://www.nata.org/>.

#### Other

American Diabetes Association. <http://www.diabetes.org/exercise>.

American Heart Association. <http://www.heart.org>.  
American Orthopaedic Society for Sports Medicine. <http://www.sportsmed.org>.  
American Society of Exercise Physiologists. <http://www.css.edu/asep>.

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**exercise** /ex-er-cise/ (ek'ser-siz) performance of physical exertion for improvement of health or correction of physical deformity.

**active exercise** motion imparted to a part by voluntary contraction and relaxation of its controlling muscles.

**aerobic exercise** that designed to increase oxygen consumption and improve functioning of the cardiovascular and respiratory systems.

**endurance exercise** one that involves the use of several large groups of muscles and is thus dependent on the delivery of oxygen to the muscles by the cardiovascular system.

**isokinetic exercise** dynamic muscle activity performed at a constant angular velocity; torque and tension remain constant while muscles shorten or lengthen.

**isometric exercise** active exercise performed against stable resistance, without change in the length of the muscle.

**isotonic exercise** active exercise without appreciable change in the force of muscular contraction, with shortening of the muscle.

**Kegel exercises** exercises performed to strengthen the pubococcygeal muscle.

**passive exercise** motion imparted to a part by another person or outside force, or produced by voluntary effort of another segment of the patient's own body.

**range of motion exercise** the putting of a joint through its full range of normal movements, either actively or passively.

**resistance exercise, resistive exercise** that performed by the patient against resistance, as from a weight.

Dorland's Medical Dictionary for Health Consumers. © 2007 by Saunders, an imprint of Elsevier, Inc. All rights reserved.

**ex-er-cise** (ek'ser-siz)

*n.*

Active bodily exertion performed to develop or maintain fitness.

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**exercise**

[ek'sersiz]

Etymology: *L., exercere, to exercise*

1 *n.* the performance of any physical activity for the purpose of conditioning the body, improving health, or maintaining fitness or as a means of therapy for correcting a deformity or restoring the organs and body functions to a state of health.

2 *n.* any action, skill, or maneuver that causes muscle exertion and is performed repeatedly to develop or strengthen the body or any of its parts.

3 *v.* to use a muscle or part of the body in a repetitive way to maintain or develop its strength. Exercise has a beneficial effect on each of the body systems, although in excess it can lead to the breakdown of tissue and cause injury. Kinds of exercise are active assisted exercise, active exercise, active resistance exercise, aerobic exercise, anaerobic exercise, isometric exercise, isotonic exercise, muscle-setting exercise, passive exercise, progressive resistance exercise, range of motion exercise, therapeutic exercise, and underwater exercise.

Mosby's Medical Dictionary, 8th edition. © 2009, Elsevier.

**exercise,**

*n* the performance of physical activity for the purpose of conditioning the body, improving health, or maintaining fitness or as a means of therapy for correcting a deformity or restoring the organs and bodily function to a state of health.

*n* See therapy, myofunctional.

Mosby's Dental Dictionary, 2nd edition. © 2008 Elsevier, Inc. All rights reserved.

**exercise**

performance of physical exertion to obtain food or to achieve normal functions such as reproduction, for pleasure and for improvement of health or correction of physical deformity.

**active exercise**

motion imparted to a part by voluntary contraction and relaxation of its controlling muscles.

**exercise conditioning**

repeated exercise to condition an animal for a better performance at another time depends on an improvement in cardiovascular responses, splenic contraction and muscle, ligament and tendon responses.

**corrective exercise**

therapeutic exercise.

**exercise fatigue**  
poor exercise tolerance.

**exercise intolerance**  
manifested by a disinclination to move quickly in the absence of any apparent physical lameness or incoordination and respiratory distress on exercise.

**passive exercise**  
motion imparted to a segment of the body by a therapist, machine or other outside force.

**exercise physiology**  
includes the integrated physiological responses to exercise plus physical conditioning by training.

**exercise testing**  
a technique for evaluating circulatory response to physical stress; called also stress testing. The procedure involves continuous electrocardiographic monitoring during physical exercise, the objective being to increase the intensity of physical exertion until a target heart rate is reached or signs of cardiac ischemia appear.

**therapeutic exercise**  
the scientific use of bodily movement to restore normal function in diseased or injured tissues or to maintain a state of well-being. Called also corrective exercise.

**exercise tolerance**  
one of the ways to measure cardiac and circulatory system efficiency is to measure the response of the cardiac and respiratory systems to graded exercise. In most animals such tests must be subjective because no data are available on normal responses. In horses tests are available for assessment of cardiopulmonary disease and as a measure of fitness.

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## exercise

Public health The rhythmic contraction of muscles against a force Pros ↓ risk of cholecystectomy, ↓ risk of CAD, CHD, CA—colorectal, breast, prostate, DM—improved insulin utilization, obesity, stroke, osteoporosis, stress, anxiety; ↑ sexual pleasure, strength, flexibility, stamina, psychological well-being, general health; improved reaction time, memory, moods, immune resistance, sleep, self-confidence, control of arthritis, weight, quality of life. See Aerobic exercise, Anaerobic exercise, Breathing exercise, Cardiovascular exercise, Codman's pendulum exercise, Hoshino exercise, Isometric exercise, Isotonic exercise, Pritikin exercise, Vigorous exercise.

### Exercise

#### Muscle

- **Isometric Exercise** against an unmoving resistance; isometric exercises consist of muscle contraction with a minimum of other body movements; isometric exercises build muscle strength and include weight-lifting or squeezing a tennis ball

- **Isotonic Dynamic exercise** Isotonic exercise consists of continuous and sustained movement of the arms and legs; isotonic exercises are beneficial to the cardiorespiratory systems and include running and bicycling

#### Whole body

- **Low-impact aerobics** Any type of aerobic exercise that promotes physical fitness, but does not stress musculoskeletal tissues, and joints; low-impact aerobic exercises include walking, swimming, bicycling

- **High-impact aerobics** Any type of aerobic exercise that promotes physical fitness, at the risk of stress to musculoskeletal tissues, and joints; high-impact aerobic exercises include aerobic dancing, basketball, running, volleyball

#### Exercise-kcal consumed/hour

Distance running (15 km/hour) 1000

Contact sports (wrestling, karate) 900

Bicycling (25 km/hour) 800

Swimming, freestyle 800

Basketball, volleyball 700

Jogging (9 km/hour) 600

Tennis 500

Coitus 450

Walking 400

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## Patient discussion about resistance exercise.

**Q. What Exercises Can I Do During Pregnancy?** I am 16 weeks pregnant. My doctor told me that doing some exercise would help with my back pain. Is it safe? What exercises can I do during pregnancy?

**A.** Exercising regularly during pregnancy is recommended. Previously athletic women can keep their exercise routine as it was prior to the pregnancy and it is considered safe. However, for women who have not exercised on a regular basis before pregnancy, it is recommended to start with slow-moderate physical activities such as swimming, walking, yoga and pelvic floor exercises, that can ease back pain and increase flexibility. The building of muscle strength is important both for late stages of pregnancy and for labor itself.

**Q. Can I exercise during my pregnancy?** Before I became pregnant I used to go to the gym 3 times a week. Can I still exercise now that I am pregnant?

**A.** Thanks everybody! I enrolled to a Pilates class last week, and already had 2 sessions.

